

## **IC 22-10-10**

### **Chapter 10. Electrical Equipment**

## **IC 22-10-10-1**

### **Installation; insulators; surface buildings**

Sec. 1. (A) Overhead high-potential power lines shall be placed at least 15 feet above the ground and 20 feet above driveways and haulageways, shall be installed on insulators, and shall be supported and guarded to prevent contact with other circuits.

(B) Surface transmission lines including trolley circuits shall be protected against short circuits and lightning. Each exposed power circuit that leads underground shall be equipped with lightning arresters of approved type at the point where the circuit enters the mine.

(C) Electric wiring in surface buildings shall be installed so as to minimize fire and contact hazards.

*(Formerly: Acts 1955, c.168, s.68.)*

## **IC 22-10-10-2**

### **Transformers; construction of building; underground storage**

Sec. 2. (a) Unless surface transformers are isolated by elevation (eight (8) feet or more above the ground), they shall be enclosed in a transformer house or surrounded by a suitable fence at least six (6) feet high. If the enclosure or fence is of metal, it shall be grounded effectively. The gate or door to the enclosure shall be kept locked at all times, unless authorized persons are present.

(b) Surface transformers containing flammable oil and installed where they present a fire hazard shall be provided with means to drain or to confine the oil in event of rupture of the transformer casing.

(c) All transformers ordered after March 8, 1955, for use underground shall be air cooled or filled with nonflammable liquid or inert gas.

(d) Suitable danger signs shall be posted conspicuously at all transformer stations on the surface and underground.

(e) All transformer stations on the surface and underground shall be kept free of nonessential combustible materials and refuse.

*(Formerly: Acts 1955, c.168, s.69.) As amended by P.L.144-1986, SEC.186.*

## **IC 22-10-10-3**

### **Battery charging, pump, and compressor stations; ventilation**

Sec. 3. (A) All surface and underground substations, battery-charging stations, pump stations, and compressor stations shall be kept free of nonessential combustible material and refuse.

(B) All housings enclosing oil switchgear shall be ventilated effectively.

(C) Reverse-current protection shall be provided at storage-battery charging stations to prevent the storage batteries from energizing the power circuits in the event of power failure.

*(Formerly: Acts 1955, c.168, s.70.)*

#### **IC 22-10-10-4**

##### **Underground wires; current-carrying capacity; installation**

Sec. 4. (a) All underground power wires and cables shall have adequate current-carrying capacity, shall be protected from mechanical injury, and with the exception of trailing cables and power cables connected to junction boxes, shall be installed in a permanent manner.

(b) Wires and cables not incased in armor shall be supported by well installed insulators and shall not touch combustible materials, roof, or ribs. However, this does not apply to ground wires, grounded power conductors, and trailing cables.

(c) Power wires and cables installed in rope-and-belt haulage slopes shall be insulated adequately and fully protected against mechanical injury.

(d) Splices in power cables shall be made in accordance with the following:

- (1) Mechanically strong with adequate electrical conductivity.
- (2) Effectively insulated and sealed so as to exclude moisture.
- (3) If the cable has metallic armor, mechanical protection, and electrical conductivity equivalent to that of the original, armor shall be provided.

(e) All underground high potential transmission cables shall be:

- (1) installed only in regularly inspected airways or haulageways;
- (2) covered, buried, or placed so as to afford reasonable protection against damage by wrecked trips, trolley equipment, roof falls, and blasts;
- (3) guarded where persons regularly work or pass under them unless they are six and one-half (6 1/2) feet or more above the floor or rail;
- (4) securely anchored, properly insulated, and guarded at ends; and
- (5) covered, insulated, or placed to prevent contact with trolley and other low-voltage circuits.

(f) All power wires and cables shall be insulated adequately where they pass into or out of electrical compartments, where they pass through doors and stoppings, and where they cross other power wires and cables.

(g) Where track is used as a power conductor:

- (1) both rails of mainline tracks shall be welded or bonded at every joint, and cross bonds shall be installed at intervals of not more than two hundred (200) feet. If the rails are parallel with a feeder circuit of like polarity, such parallel feeder shall be bonded to the track rails at intervals of not more than one thousand (1,000) feet;
- (2) at least one (1) rail on secondary track-haulage roads shall be welded or bonded at every joint, and cross bonds shall be installed at intervals of not more than two hundred (200) feet.

However, rail joints in such secondary haulage roads need not be bonded where a copper feeder adequate in size parallels the track and is electrically connected thereto at intervals of not more than two hundred (200) feet by crossbonds;

(3) track switches on entries shall be well bonded; and

(4) in rooms where electric equipment is dependent upon the room track rails as a power conductor, rail joints shall be secured by means of fish plates, angle bars, or the equivalent, and at least one (1) rail shall be bonded at each joint.

(h) All power circuits and electric equipment shall be deenergized before work is done on them. However, employees may, where necessary, repair energized trolley wires if they wear insulated shoes and lineman's gloves.

(i) Trolley wires and trolley feeder wires shall be installed on the side of the entry opposite the clearance space and shelter holes, except where the wires are guarded or are six and one-half (6 1/2) feet or more above the top of the rail.

(j) Trolley-wire hangers shall be so spaced that the wire may become detached from any one (1) hanger without creating a shock hazard.

(k) Trolley wires shall be aligned properly and installed on insulated hangers at least six (6) inches outside the rail.

(l) Trolley wires and trolley feeder wires installed after March 8, 1955, shall be provided with cutout switches at intervals of not more than two thousand (2,000) feet and near the beginning of all branch lines.

(m) Trolley wires and trolley feeder wires shall be kept taut and not permitted to touch the roof, ribs, timbers, or any combustible material.

(n) Trolley wires, and trolley feeder wires unless insulated, shall be guarded adequately at both sides of doors and at all places where it is necessary to work or pass under them unless they are more than six and one-half (6 1/2) feet above the top of the rail.

(o) Trolley wires and trolley feeder wires shall be guarded, anchored securely, and insulated properly at the ends.

(p) In any mine opened after March 8, 1955, or in any old mine that may be reopened or reequipped after March 8, 1955, trolley wires or other exposed conductors shall not carry more than three hundred fifty (350) volts, except when authorized by the director.

*(Formerly: Acts 1955, c.168, s.71; Acts 1971, P.L.358, SEC.10.) As amended by P.L.144-1986, SEC.187; P.L.243-1987, SEC.10.*

## **IC 22-10-10-5**

### **Conduits; casings**

Sec. 5. (A) All metallic sheaths, armors, and conduits enclosing power conductors shall be electrically continuous throughout and shall be grounded effectively.

(B) Metallic frames, casings, and other enclosures of electric equipment that can become "alive" through failure of insulation or by contact with energized parts shall be grounded effectively or

equivalent protection shall be provided.  
(Formerly: Acts 1955, c.168, s.72.)

#### **IC 22-10-10-6**

##### **Circuit breaking devices; switchboards; lights**

Sec. 6. (a) Automatic circuit-breaking devices or fuses of the correct type and capacity shall be installed so as to protect all electric equipment and power circuits against excessive overload. Wires or other conducting materials shall not be used as a substitute for properly designed fuses, and circuit-breaking devices shall be maintained in good operating condition.

(b) Operating controls, such as switches, starters, and switch buttons, shall be so installed that they are readily accessible and can be operated without danger of contact with moving or live parts. On stationary equipment provision shall be made for locking starting equipment in the "off" position to prevent accidental application of power.

(c) Disconnecting switches shall be installed underground in all main power circuits within five hundred (500) feet of the bottoms of shafts and boreholes and at other places where main power circuits enter the mine.

(d) Electric equipment and circuits shall be provided with switches or other controls of safe design, construction, and installation.

(e) Dry wooden platforms, insulating mats, or other electrically nonconductive material shall be kept in place at each switchboard, power control switch, and at stationary machinery where shock hazards exist.

(f) Resistors or rheostats shall be installed in such a manner as not to create a fire hazard and shall be guarded adequately against personal contact.

(g) When not in use, power circuits underground shall be deenergized on idle days and idle shifts.

(h) Electric parts, such as switches, circuit breakers, rheostats, relays, and fuses, shall be installed on switchboards or mounted on incombustible bases of slate or equivalent insulating material.

(i) Switchboards installed after March 8, 1955, shall be located so that ample room will be provided between the switchboard and passageways or lanes of travel and shall have an entrance at each end to permit authorized persons to inspect, adjust, or repair apparatus back of the board. Switchboards shall have the entrance to the rear guarded against entrance of unauthorized persons, unless in a building that is kept locked.

(j) Switchboards shall be well lighted for switch operations in the front and for repair and maintenance in the rear.

(k) Rooms housing switchboards shall not be used for the storage of combustible materials and shall be kept free of debris and refuse.

(l) Suitable danger signs shall be posted conspicuously at all high-potential switchboard installations.

(Formerly: Acts 1955, c.168, s.73.) As amended by P.L.144-1986,

SEC.188.

#### **IC 22-10-10-7**

##### **Telephone service; installation**

Sec. 7. (A) Telephone service or equivalent two-way communication facilities shall be provided between the top and each landing of main shafts and slopes and in all mines between the surface and each working section that is more than 1,500 feet from the main portal.

(B) Telephone lines, other than cables, shall be carried on insulators, installed on the opposite side from power or trolley wires, and where they cross power or trolley wires, they shall be insulated adequately.

(C) Lightning arresters shall be provided at the points where telephone circuits enter the mine. Mine telephone extensions in surface buildings shall be provided with a lightning arrester for each circuit entering the building.

(D) If a communication system other than telephones is used and its operation depends entirely upon power from the mine electric system, means shall be provided to permit continued communication in event the mine electric power fails or is cut off; Provided, however, That where trolley phones and telephones are both used an alternate source of power for trolley phones is not required.

*(Formerly: Acts 1955, c.168, s.74.)*

#### **IC 22-10-10-8**

##### **Signal wires; bare signal wires**

Sec. 8. (a) Signal wires shall be supported on insulators and insulated properly where they cross power lines.

(b) Bare signal wires that are readily accessible to personal contact shall not carry more than forty (40) volts not to exceed one tenth (.1) amperes.

*(Formerly: Acts 1955, c.168, s.75.) As amended by P.L.231-1983, SEC.19.*

#### **IC 22-10-10-9**

##### **Electric face equipment; use in mines; methane restrictions**

Sec. 9. (a) Electric face equipment may be used in a mine.

(b) In a mine, permissible junction or distribution boxes shall be used for making multiple power connections in working places or other places where dangerous quantities of methane may be present or may enter the air current.

(c) Electric equipment shall not be taken into or operated in any place where methane can be detected at levels greater than one percent (1%) with a methane detector approved by the United States Mine Safety and Health Administration or a flame safety lamp within twelve (12) inches of the roof, face, or rib.

(d) In any mine opened after March 8, 1955, or in any old mine that may be reopened or reequipped after March 8, 1955, electric power for face equipment shall be limited to one thousand (1,000)

volts between any conductors and grounds.

*(Formerly: Acts 1955, c.168, s.76; Acts 1971, P.L.358, SEC.11.) As amended by P.L.144-1986, SEC.189; P.L.243-1987, SEC.11.*

#### **IC 22-10-10-10**

##### **Trailing cables; requirements; restrictions**

Sec. 10. (a) Trailing cables purchased after March 8, 1955, for use underground shall meet the United States Bureau of Mines requirements for flame-resistant cables.

(b) Trailing cables shall be provided with suitable short-circuit protection and some means of disconnecting power from the cable.

(c) Temporary splices in trailing cables shall be made in a workmanlike manner, mechanically strong, and well insulated.

(d) Trailing cables or hand cables having exposed wires or splices that heat or spark under load shall not be used.

(e) Permanent splices in trailing cables shall be made as follows:

(1) Mechanically strong with adequate electrical conductivity and flexibility.

(2) Effectively insulated and sealed so as to exclude moisture.

(3) The finished splice shall be vulcanized or otherwise treated with suitable materials to provide flame-resistant properties and good bonding to the outer jacket.

(f) Care shall be used to protect trailing cables from avoidable mechanical damage.

*(Formerly: Acts 1955, c.168, s.77.) As amended by P.L.144-1986, SEC.190; P.L.243-1987, SEC.12.*

#### **IC 22-10-10-11**

##### **Equipment and wiring; inspection; frequency; mine electrician**

Sec. 11. (A) Electric equipment and wiring shall be inspected by a competent person at least once a month and more often if necessary to assure safe operating conditions, and any defect found shall be corrected promptly.

(B) In every coal mine in this state there shall be a properly certified mine electrician: Provided, however, That until January 1, 1972, an individual who is a "qualified person" within the meaning of the Federal Coal Mine Health and Safety Act of 1969 as amended or the regulations promulgated pursuant to such article, may perform the duties of a certified mine electrician.

*(Formerly: Acts 1955, c.168, s.78; Acts 1971, P.L.358, SEC.12.)*

#### **IC 22-10-10-12**

##### **Electric light wires; installation**

Sec. 12. (A) Electric-light wires shall be supported by suitable insulators, or installed in conduit, fastened securely to the power conductors, and not permitted to touch combustible material.

(B) Electric lights shall be installed so that they cannot come in contact with combustible materials.

(C) Only weatherproof lamp sockets having no exposed metal parts shall be used for unenclosed applications.

*(Formerly: Acts 1955, c.168, s.79.)*

### **IC 22-10-10-13**

#### **Machinery and equipment; safety measures**

Sec. 13. (A) The cutter chains of mining machines shall be locked securely by mechanical means or electrical interlocks while such machines are parked or being trammed.

(B) Guards required by section 14(A)(1) of this chapter shall be securely in place while machinery is being operated, except when testing the machinery.

(C) Electric drills or other electrically operated rotating tools intended to be held in the hands shall have the electric switch constructed so as to break the circuit by release of finger pressure and so designed to minimize unintentional operation or shall be equipped with properly adjusted friction or safety clutches.

(D) Mobile and stationary machinery and equipment shall be maintained in safe operating condition and machinery or equipment in unsafe condition shall be removed from service immediately.

(1) Machinery and equipment shall be operated only by persons authorized to operate such machinery or equipment and shall not be operated in such a manner as to create a hazard to themselves or other persons.

(2) Repairs or maintenance shall not be performed on machinery until the power is off and the machinery is blocked against motion, except where power and machinery motion is necessary to make adjustments.

(3) Machinery shall not be lubricated manually while in motion, unless equipped with extended fittings or cups.

*(Formerly: Acts 1955, c.168, s.80.) As amended by Acts 1979, P.L.231, SEC.18.*

### **IC 22-10-10-14**

#### **Machinery and equipment; safety guards**

Sec. 14. (A) The following shall be guarded adequately:

(1) Gears, sprockets, chains, drive pulleys, head pulleys, tail pulleys, takeup pulleys, flywheels, couplings, shafts, sawblades, fan inlets, and similar exposed moving machine parts which may be contacted by persons, and which may cause injury to persons shall be guarded.

(2) Guards at conveyor drive, conveyor head, belt drive, chain drive, or rope drive and conveyor, belt, chain, or rope tail pulleys shall extend a distance sufficient to prevent a person from reaching behind the guard and becoming caught in the drive, head, or pulley.

(3) Belt, chain, or rope drives that are within seven (7) feet of floor or platform.

(4) Fly wheels, power saws, and planers. Where fly wheels extend more than seven (7) feet above the floor, they shall be guarded to a height of at least seven (7) feet.

(5) Guards shall be kept in place when the repair pits are not in use.

(6) The approach to each side of mine fans shall be guarded.

(7) Post-mounted drills, purchased after March 8, 1955, shall be equipped with automatic stop control safety switches or shall be equipped with properly adjusted friction or safety clutches.

(B) Machinery shall not be repaired or oiled while in motion; however, this does not apply where safe remote oiling devices are used.

(C) A guard or safety device removed from any machine shall be replaced before the machine is put in operation.

(D) Belts, chains, and ropes shall not be guided onto power-driven moving pulleys, sprockets, or drums with the hands except on slow-moving equipment especially designed for hand feeding.

(E) Pulleys of conveyors shall not be cleaned manually while the conveyor is in motion.

(F) Coal spilled beneath belt conveyor drives or tail pieces shall not be removed while the conveyor is in motion, except where such coal can be removed without endangering persons.

(G) Stationary grinding machines other than special bit grinders shall be equipped with:

(1) Peripheral hoods (less than ninety degrees (90°) throat openings) capable of withstanding the force of a bursting wheel.

(2) Adjustable tool rests set as close as practical to the wheel.

(3) Safety washers.

(H) Grinding wheels shall be operated within the specifications of the manufacturer of the wheel.

(I) Face shields or goggles, in good condition, shall be worn when operating a grinding wheel.

*(Formerly: Acts 1955, c.168, s.81.) As amended by Acts 1979, P.L.231, SEC.19.*

## **IC 22-10-10-15**

### **Fire-fighting equipment**

Sec. 15. (a) Each mine shall be provided with suitable fire-fighting equipment, adequate for the size of the mine.

(b) After every blasting operation, an examination shall be made to determine whether fires have been started.

(c) Should a fire occur, the person discovering it and any persons in the vicinity of the fire shall make a prompt effort to extinguish it.

(d) When a fire that may endanger the workers underground cannot be extinguished immediately, the workers shall be withdrawn immediately from the mine, except those necessary to fight the fire.

(e) Underground storage places for lubricating oil and grease shall be of fireproof construction.

(f) Lubricating oil and grease kept in face regions or other underground working places in a mine shall be in portable, closed, metal containers.

(g) Underground structures (transformer stations, battery-charging stations, substations, permanent pump rooms, etc.) installed in a mine shall be of fireproof construction.

(h) Welding, cutting, or soldering with arc or flame in



underground face regions in other than a fireproof enclosure shall be done under the direct supervision of a properly certified person who shall test for methane before and frequently during such operations in all mines and shall make a diligent search for fire after such operations in all mines. Rock dust or suitable fire extinguishers shall be immediately available during such welding, cutting, or soldering.

(i) Provisions shall be made to prevent accumulation of spilled oil or grease at the storage places or at the locations where such materials are used.

(j) Oily rags, oily waste, and waste paper shall be kept in closed metal containers until removed for disposal.

(k) Underground belt conveyors installed after March 8, 1955, shall be equipped with control switches to automatically stop the driving motor in the event that the belt is stopped by slipping on the driving pulley, by breakage or other accident.

*(Formerly: Acts 1955, c.168, s.82.) As amended by Acts 1979, P.L.231, SEC.20; P.L.165-1997, SEC.11.*

## **IC 22-10-10-16**

### **Disasters; investigations**

Sec. 16. (A) No mine may resume operations following a mine explosion or mine fire until such mine has been inspected in its entirety by the director or mine inspector and found by him to be in safe condition to operate.

(B) Following a mine accident resulting in the death or serious injury of one (1) or more persons and following any mine disaster, the evidence surrounding such occurrence shall not be disturbed after recovery of bodies or injured persons until an investigation by the director or mine inspector has been completed.

*(Formerly: Acts 1955, c.168, s.83.) As amended by Acts 1979, P.L.231, SEC.21.*